Power Area Graduate Seminar

Monday, March 18, at Noon
Room 104 Emerson Electric Company Hall

Modeling and Control of a Grid Connected VSI using a delta connected LCL Filter

Presented by Sangin Lee, Missouri S&T

Abstract: In DC/AC inverters or AC/DC converters, a typical physical method to reduce grid current harmonics is to use an L filter. As an alternative method for it, an LCL filter has advantages over an L filter. However, an LCL filter leads to stability problems due to a pair of complex poles. To damp resonance, a mathematical model should be known. There are two ways to connect an LCL filter in a three phase system. A wye connected LCL filter is the typical way, and the other is a delta connected LCL filter. This presentation will show how to make a mathematical model of a system with a delta connected LCL filter. Also, a comparative study of capacitor current harmonics of a delta connected LCL filter and a wye connected LCL filter is included.

Biography: Sangin Lee received his B.S. degree in 2007, M.S. degree in 2009 in Electrical Engineering from Hanyang University, Seoul, South Korea. He is currently a Ph.D. candidate and graduate research assistant at the Missouri University of Science and Technology. His research interests include multilevel converters and inverters, LLC resonant converters, optimal control theory and neural network control theory.